


# Hanging in the Balance: The Role of Self-Construal Abstractness in Navigating Self-Relevant Uncertainty

Personality and Social Psychology Bulletin  
38(4) 520–527  
© 2012 by the Society for Personality  
and Social Psychology, Inc  
Reprints and permission:  
sagepub.com/journalsPermissions.nav  
DOI: 10.1177/0146167211429806  
http://pspb.sagepub.com  


Arezou Ghane Cavanaugh<sup>1</sup> and Kate M. Sweeny<sup>1</sup>

## Abstract

People inevitably face moments of uncertainty as they await feedback regarding self-relevant life outcomes, but they react to this uncertainty with varying amounts of anxiety. Self-construal abstractness (SCA) may be one key predictor of anxiety in the face of uncertain outcomes. SCA refers to a broad self-concept based on generalizations rather than a detailed, low-level self-concept that is based on specific behaviors or events. The current studies examined SCA and anxiety over self-relevant uncertainty. Studies 1 and 2 measured naturally occurring levels of SCA and found that reflecting on an abstract self-construal buffered people from anxiety when upcoming evaluative feedback was highly self-relevant (Study 1) and immediate (Study 2). Study 3 revealed that SCA is equally effective as a buffer against anxiety when manipulated with a subtle prime. The potential for SCA to serve as the target for anxiety-reduction interventions in uncertain situations is discussed.

## Keywords

anxiety, self-construal, self-concept, identity, uncertainty

Received September 3, 2011; revision accepted October 5, 2011

Whether awaiting the results of a job interview, performance evaluation, or medical test, people often experience situations in which their future hinges on an unknown outcome. Such moments of self-relevant uncertainty are an inevitable part of life, and often the only option during these times is simply to wait for the outcome to be revealed. It is no surprise that people awaiting such consequential outcomes experience anxiety as they consider the potential implications of the upcoming feedback. Despite the ubiquity of this experience, few researchers have identified strategies to alleviate the anxiety of waiting for a self-relevant outcome to be revealed. The goal of the present studies is to examine a strategy by which people might mitigate the anxiety of self-relevant uncertainty.

## Anxiety Over Uncertainty

Many physiological and phenomenological investigations have revealed a strong link between uncertainty and anxiety (Behar, 2001; Berlyne, 1960; Fiske & Maddi, 1961; Monat, Averill, & Lazarus, 1972; Morse & Penrod, 1999; Penrod, 2007; Reiman, Fusselman, Fox, & Raichle, 1989), and this link holds true even when people face a very slight probability of a noxious event (Epstein, Rosenthal, & Szpiller, 1978). In fact, waiting periods often are more difficult to endure than

is the experience of the negative outcome itself. A study of patients awaiting surgery found that people reported greater anxiety about the waiting time before surgery than about the procedure itself (Janzen & Hadjistavropoulos, 2008). Similarly, patients awaiting a diagnostic procedure (i.e., an uncertain outcome) experienced greater anxiety than did patients in a comparison group awaiting treatment procedures (i.e., a certain and unpleasant outcome; Flory, Faintuch, & Lang, 2008). Research on affective forecasting sheds light on these findings. Uncertainty is anxiety provoking in its own right (e.g., Penrod, 2001, 2002; Reiman et al., 1989), but research also suggests that people tend to exaggerate the potential impact of an upcoming unfavorable outcome (Wilson & Gilbert, 2005). That is, people awaiting uncertain news might imagine the feared outcome to be even more devastating than it would be in reality, thus heightening anxiety during the waiting period relative to the period following an undesirable outcome.

---

<sup>1</sup>University of California, Riverside, CA, USA

## Corresponding Author:

Arezou Ghane Cavanaugh, Department of Psychology, University of California, Riverside, CA 92521  
Email: arezou.cavanaugh@email.ucr.edu

Several lines of research have investigated the consequences of this anxious response to self-relevant uncertainty. Specifically, research on “bracing for bad news” finds that anxiety in the face of potential bad news serves as a cue to engage in the self-protective strategy of lowering expectations at the moment of truth (Shepperd, Grace, Cole, & Klein, 2005). Furthermore, researchers have developed a model of uncertainty navigation based on findings across social and health psychology, and this model proposes that anxiety over uncertainty prompts a range of self-protective strategies that diminish or buffer against the threat posed by uncertainty (Sweeny & Cavanaugh, 2010). Taken together, these inquiries illustrate a pattern of anxiety prompting defensive action against news that may be personally damaging or threatening. We propose a unique self-protective strategy that might mitigate anxiety over self-relevant uncertainty: self-construal abstractness (SCA).

### Self-Construal Abstractness

SCA is a construct that depicts self-views as either *abstract* or *concrete* (Updegraff, Emanuel, Suh, & Gallagher, 2010; Updegraff & Suh, 2007). Abstract self-construals are characterized by broad, high-level descriptions of the self that are not based on specific behaviors or events (e.g., “I am a kind person”), and concrete self-construals are detailed, low-level descriptions of the self that reflect specific behaviors or events (e.g., “I regularly donate to charities”). Several studies have demonstrated that although SCA can function as a trait-like individual difference, it is also malleable and responsive to situational cues including subtle laboratory primes (Updegraff et al., 2010; Updegraff & Suh, 2007). SCA is rooted in action identification theory, which suggests that people construe actions in terms of either high-level descriptions of “why” actions occur (e.g., “to improve my health”) or low-level descriptions of “how” actions occur (e.g., “eating five servings of vegetables a day”; Vallacher & Wegner, 1987, 1989). A key difference between SCA and action identification theory is that research on SCA examines how people perceive *themselves* in relation to their outcomes, regardless of the level of abstraction used to describe the outcome itself.

The research thus far reveals that greater SCA predicts self-esteem stability (Updegraff et al., 2010; see also Vess, Arndt, & Schlegel, 2011) and greater well-being (Updegraff & Suh, 2007). Specifically, research examining the relation between SCA and self-esteem stability has examined both naturally occurring and primed SCA (Updegraff et al., 2010). For example, one study measured individual differences in SCA and then followed participants’ experiences through daily diaries in which they reported life events along with their corresponding emotions and state self-esteem. This investigation revealed that people with a more abstract self-construal experienced smaller fluctuations in self-esteem in response to negative events over the course of 1 week

(Updegraff et al., 2010). A follow-up study used similar methods but manipulated SCA rather than measured it and found additional support for the role of SCA in self-esteem stability (Updegraff et al., 2010). These findings further revealed that SCA uniquely predicts self-esteem stability above and beyond the predictive ability of positive and negative emotions, self-concept clarity, and neuroticism (Updegraff et al., 2010).

Thus, research on SCA has demonstrated that people with a more abstract self-construal possess a sense of self that is relatively invulnerable to disconfirmation by negative life experiences (Updegraff et al., 2010; Updegraff & Suh, 2007). Although previous findings substantiate the protective function of SCA *following* a negative event, researchers have yet to determine if SCA can serve a similar protective function when people await a self-relevant but uncertain outcome. As discussed earlier, awaiting an uncertain outcome is often more painful than facing a clear negative outcome (Flory et al., 2008; Janzen & Hadjistavropoulos, 2008), and thus an abstract self-construal may be particularly beneficial during these often agonizing waiting periods.

### The Role of Threat

Based on the previous literature, we hypothesized that SCA would be related to anxiety in the face of self-relevant uncertainty such that people with a more abstract self-construal would experience less anxiety, but only when uncertainty was particularly threatening. SCA is not an all-purpose antidote for anxiety (Updegraff & Suh, 2007); rather, SCA serves a protective function when anxiety arises in response to a notable threat to self-views. Accordingly, two of our studies manipulated the degree of threat posed by uncertainty as a stringent test of the specificity of SCA’s functionality. We predicted that when self-related threat is high, SCA lowers anxiety in the face of uncertainty. Conversely, we predicted that when self-related threat is low, SCA would have no effect on anxiety.

Our threat manipulations had the secondary goal of distinguishing SCA from the related construct of self-affirmation. Like SCA, self-affirmation can serve as a strategy for coping with negative life events by drawing attention toward stable, valued aspects of the self (Sherman & Cohen, 2006). However, research on the link between self-affirmation and anxiety reveals that following a self-affirmation induction, people experience greater anxiety when the threat to self-views is highest. For example, one study found that following an antidrinking message, heavy drinkers who had been self-affirmed were more anxious than heavy drinkers who had not been self-affirmed, whereas light drinkers (a low-threat group) were less anxious if they had been self-affirmed (Harris & Napper, 2005). That is, self-affirmation increased anxiety when threat was high but decreased anxiety when threat was low. In contrast, we predicted that SCA would

show a nearly opposite pattern, decreasing anxiety when threat is high and having little or no effect on anxiety when threat is low.

### The Present Studies

In this article, we assess the role of SCA as a buffer against anxiety in three studies. The first two studies explored uncertainty in the context of waiting for a social evaluation. These studies measured naturally occurring levels of SCA and examined their buffering role in the face of uncertainty that presented high versus low threat to self-views. Researchers have identified a number of situational factors that increase feelings of threat in anticipation of bad news (Carroll, Sweeny, & Shepperd, 2006; Shepperd, Ouellette, & Fernandez, 1996; Taylor & Shepperd, 1998). Therefore, we drew from this literature to develop two manipulations designed to enhance the threat of impending and uncertain feedback. In Study 1, we manipulated the importance of the feedback (Taylor & Shepperd, 1998), and in Study 2 we manipulated the temporal proximity of feedback (Shepperd et al., 1996). We hypothesized that SCA would be related to anxiety such that people with more abstract self-construals would experience less anxiety, but only when the feedback was personally important (Study 1) or imminent (Study 2).

The third study explored uncertainty in the context of health-related feedback and manipulated SCA in an effort to demonstrate its potential as a target for anxiety-reduction interventions. As mentioned earlier, previous studies found that SCA functions both as an individual difference and as a malleable state that responds to situational cues, including subtle laboratory primes (Updegraff et al., 2010; Updegraff & Suh, 2007). We hypothesized that even a subtle and temporary manipulation of SCA would buffer against anxiety in the face of self-relevant uncertainty.

### Study 1

Study 1 examined people's naturally occurring levels of SCA in the context of a personal evaluation. The goal of this study was to determine whether reflection on one's SCA serves as a buffer from the anxiety of uncertainty and whether its buffering role is particularly effective when people expect to receive potentially threatening feedback.

We also examined a possible alternative explanation for a link between SCA and anxiety in the face of uncertain feedback. Although previous research would suggest that an abstract self-construal confers emotional stability by rendering self-views relatively immune to disconfirmation (Updegraff et al., 2010), it is also possible that an abstract self-construal simply reflects a generally positive mind-set and thus reduces anxiety through a boost in optimism or positivity of self-views rather than emotional stability. We tested this possibility in Study 1.

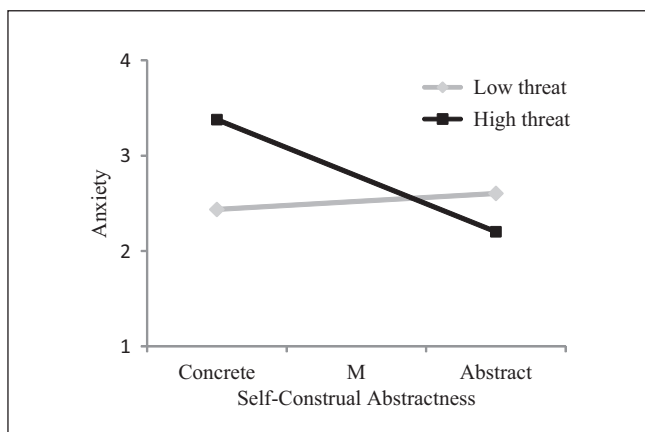
### Method

Upon being greeted by the experimenter, participants ( $N = 74$ , 69% female,  $M_{age} = 18.7$ , 7% White/Caucasian, 35% Asian, 22% Hispanic/Latino, 12% Black/African American, 22% Other/Multiple) learned that they would rate photos of other students also participating in the study and have their own photo rated by these other students. Participants then posed for a photograph taken by the experimenter with a digital camera. Participants were led to believe that their photo would be rated by seven similar participants who were in other locations on campus (in reality, no other students were participating at that time). The experimenter ostensibly uploaded the participant's photo onto a website, which actually contained seven preselected photos of confederates (labeled "Participant A," "Participant B," etc.). Participants then rated these seven students, who they also believed to be rating their own photo at the same time. The nature of the ratings served as our manipulation of threat salience via feedback relevance. In the low-threat condition, the experimenter instructed participants to estimate the height of the students in the photos and explained that their photo would also be "rated" on height (1 = *very short*, 10 = *very tall*). In the high-threat condition, the experimenter instructed participants to rate the photos in terms of physical attractiveness and explained that their photo would also be rated on physical attractiveness (1 = *not at all attractive*, 10 = *extremely attractive*). All participants believed they would receive the evaluations of their photo at the end of the session.

All participants then completed a questionnaire that included two measures of primary interest. First, participants completed a measure of SCA that was intended to both measure SCA levels and prompt self-reflection regarding participants' self-construals. Participants listed and briefly described five things about themselves on which they base their self-worth (Updegraff et al., 2010). Two independent raters coded participants' responses in terms of concreteness versus abstractness (1 = *extremely concrete*, 7 = *extremely abstract*). Raters were given the following descriptions of concrete and abstract characteristics:

An extremely concrete thought is one that refers to a concrete experience or event, something a person clearly can have or not have, or something that states clear and objective criteria. An extremely abstract thought is one that focuses on broad descriptions, is vague, undefined, or could be judged flexibly by the participant.

Raters also read several examples of concrete ("I have straight white teeth") and abstract ("I'm confident") characteristics. We then constructed an average SCA score for each participant ( $M = 5.39$ ,  $SD = 1.4$ ; Cronbach's  $\alpha = .75$ ). Raters also coded participants' responses in terms of valence (1 = *negative or neutral*, 7 = *extremely positive*). We constructed



**Figure 1.** Relation between self-construal abstractness (SCA) and anxiety by threat condition (Study 1)  
 “Concrete” represents 1 SD below the mean for SCA in this study, and “abstract” represents 1 SD above the mean.

an average positivity score for each participant ( $M = 4.13$ ,  $SD = 1.5$ ; Cronbach’s  $\alpha = .82$ ). Second, participants completed a 10-item measure of anxiety (e.g. “I feel distressed,” “I feel tense”; 1 = *strongly disagree*, 5 = *strongly agree*;  $M = 2.77$ ,  $SD = 1.5$ ;  $\alpha = .93$ ) and provided a prediction of the height or attractiveness ratings they would receive ( $M = 38.26$ ,  $SD = 12.0$ ). Participants’ photographs were deleted at the end of each experimental session, and no participants actually received evaluations of their photo.

## Results and Discussion

Before testing our primary hypothesis, we sought to rule out a potential confound. Because we measured SCA after the introduction of the threat manipulation in an effort to prompt self-reflection on participants’ self-construals, it is possible that the manipulation affected what was intended to be a measure of participants’ “natural” SCA levels. As expected, we found no difference in SCA between the low-threat ( $M = 5.4$ ,  $SD = 1.3$ ) and high-threat ( $M = 5.4$ ,  $SD = 1.5$ ) conditions,  $t(70) = -.07$ ,  $p = .95$ ,  $d = .02$ .

To test our hypothesis that reflection on a more abstract self-construal would buffer participants when the situation prompted feedback-related anxiety, we conducted a simultaneous multiple regression in which feedback condition (high vs. low threat), SCA (after centering), and an interaction term between feedback condition and SCA were entered as predictors of anxiety. Neither main effect was significant,  $\beta s < .09$ ,  $t s < .80$ ,  $p s > .46$ , but the hypothesized interaction term was significant,  $\beta = -.36$ ,  $t(68) = -1.97$ ,  $p = .05$ . As predicted, SCA was related to anxiety in the high-threat condition, such that participants with more abstract self-construals were less anxious,  $\beta = -.41$ ,  $t(36) = -2.72$ ,  $p < .01$ . In contrast, and also as predicted, SCA was unrelated to anxiety in the low-threat condition,  $\beta = -.05$ ,  $t(32) = .30$ ,  $p = .76$  (Figure 1).

Importantly, these findings are both consistent with our predictions about SCA and contradictory to the alternative explanation that SCA is simply self-affirmation by another name.

We also conducted several analyses to test the possibility that our measure of SCA captured a generally positive mind-set rather than abstractness of self-views per se. We first examined the valence of self-statements and found no significant relation between the valence and abstractness of the statements,  $r(72) = .19$ ,  $p = .11$ . We then examined participants’ optimism about the upcoming feedback as a secondary assessment of participants’ general positivity and found no significant relation between SCA and feedback predictions,  $r(72) = .11$ ,  $p = .34$ . Thus, we found no evidence that our measure of SCA captured a generally positive mind-set about the self or the upcoming feedback.

## Study 2

We hypothesized in Study 1 that SCA would be related to anxiety only when people expected potentially threatening feedback. Study 2 examined whether this finding would replicate with a different manipulation of threat salience and in a different context. In Study 2, we manipulated threat salience by varying the imminence of feedback, and we did so using evaluations of participants’ intelligence and social skills rather than appearance.

We also examined an alternative explanation for our finding in Study 1 that SCA buffered anxiety when people awaited threatening personal feedback. Perhaps participants who reported an abstract self-construal also chronically construe all objects and events abstractly, and these construals of external objects and events rather than a construal specifically of the self account for the reductions in anxiety. We tested this possibility in Study 2. We also revisited the possibility that our measure of SCA captured a generally positive mind-set.

## Method

Upon arriving for the study, participants ( $N = 114$ , 58% female,  $M_{age} = 19.9$ , 42% Asian, 32% Hispanic/Latino, 3% Black/African American, 23% Other/Multiple) were told they would record a video that would be analyzed by trained evaluators who would rate their intelligence and social skills based on the video. The experimenter left the room while the participant recorded a 5-min video in the style of a reality show “video confessional,” responding to questions provided by the experimenter (e.g., “Describe your favorite childhood memory,” “Describe a typical day in your life right now”). Participants were then randomly assigned to one of two groups as a manipulation of threat salience via feedback expectancy: Participants in the high-threat condition believed that the graduate students would immediately evaluate their video and provide feedback at the end of the session, whereas

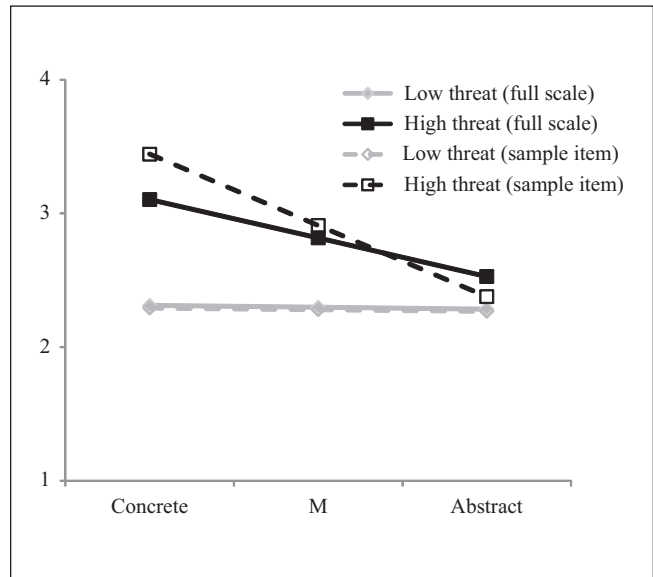
participants in the low-threat condition believed that their video would be reviewed at a later time and that they would not receive the results of their evaluation.

Similar to Study 1, all participants then completed a questionnaire that included several measures of primary interest. Participants completed the same measure of SCA used in Study 1, which was intended to both measure and prompt self-reflection on participants' naturally occurring levels of SCA, and we once again constructed an average SCA score for each participant ( $M = 5.65$ ,  $SD = 1.2$ ; Cronbach's  $\alpha = .95$ ). Raters also coded the valence of the self-statements to create an average positivity score for each participant ( $M = 3.61$ ,  $SD = 1.3$ ; Cronbach's  $\alpha = .82$ ). Participants completed the same 10-item measure of anxiety as in Study 1 ( $M = 2.56$ ,  $SD = 1.3$ ;  $\alpha = .92$ ) and reported their prediction of the score the graduate students would give them on five dimensions of intelligence and five dimensions of social skills (1 = *poor*, 9 = *excellent*;  $M = 4.52$ ,  $SD = 1.0$ ;  $\alpha = .93$ ). Finally, participants completed a measure of event construal in which they indicated whether they perceived the video evaluation procedure as "watching a short video and making judgments about the video" (concrete) or "evaluating my social skills and intelligence" (abstract). No participants actually received feedback on their video.

## Results and Discussion

As in Study 1, we again sought to rule out the possibility that SCA was affected by the threat manipulation. We once again compared SCA in the low-threat ( $M = 5.5$ ,  $SD = 1.3$ ) and high threat ( $M = 5.7$ ,  $SD = 1.1$ ) conditions and found no significant effect of threat condition on self-construal,  $t(111) = 1.09$ ,  $p = .29$ ,  $d = .21$ .

To test our hypothesis that reflection on a more abstract self-construal would buffer participants when the situation prompted feedback-related anxiety, we conducted a simultaneous multiple regression in which feedback condition (immediate vs. no feedback), SCA (after centering), and an interaction term between feedback condition and SCA were entered as predictors of anxiety. Although the hypothesized interaction term did not reach traditional levels of statistical significance when using the full 10-item anxiety measure,  $\beta = -.17$ ,  $t(109) = -1.37$ ,  $p = .17$ , the nature of the interaction was generally consistent with our hypothesis and the results of Study 1, such that participants with more abstract self-construals were marginally less anxious, but only in the high-threat condition,  $\beta = -.23$ ,  $t(58) = -1.78$ ,  $p = .08$ ; for the low-threat condition,  $\beta = -.02$ ,  $t(58) = -.11$ ,  $p = .91$  (Figure 2). Furthermore, a closer look at the anxiety measure revealed that our hypothesis was fully confirmed for an item that is highly representative of the construct of anxiety and was the first anxiety item participants completed ("I feel distressed"). Thus, for illustrative purposes we also present the results for this single representative anxiety item. Feedback condition had a significant effect on the single-item measure of anxiety, such



**Figure 2.** Relation between self-construal abstractness (SCA) and anxiety by threat condition (Study 2) "Concrete" represents 1 SD below the mean for SCA in this study, and "abstract" represents 1 SD above the mean. Results for both the full 10-item anxiety measure (solid lines) and the single-item measure used for illustrative purposes (dashed lines) are presented.

that participants in the high-threat condition felt more distressed ( $M = 2.85$ ,  $SD = 1.7$ ) than participants in the low-threat condition ( $M = 2.28$ ,  $SD = 1.5$ ),  $\beta = .19$ ,  $t(109) = 2.08$ ,  $p = .04$ . More importantly, the interaction term was also significant,  $\beta = -.25$ ,  $t(109) = -2.04$ ,  $p = .04$ . As predicted, SCA was related to distress in the high-threat condition, such that participants with more abstract self-construals were less distressed,  $\beta = -.34$ ,  $t(58) = -2.74$ ,  $p < .01$ . In contrast, and also as predicted, SCA was unrelated to anxiety in the low-threat condition,  $\beta = -.01$ ,  $t(51) = -.08$ ,  $p = .94$  (see Figure 2 for a comparison between the full measure and the representative single item).

Finally, we tested two alternative explanations for our findings. We first reexamined the possibility that our measure of SCA captured a generally positive mind-set rather than abstractness of self-views per se. As in Study 1, we found no significant relation between the valence and abstractness of the self-statements,  $r(113) = .14$ ,  $p = .13$ , or between SCA and feedback predictions,  $r(113) = .04$ ,  $p = .67$ . We also tested the possibility that our measure of SCA captured a chronic tendency to perceive the world in a relatively abstract or concrete way. We conducted a logistic regression in which SCA was entered as a predictor of participants' responses to the event construal measure (abstract or concrete). SCA was not a significant predictor of event construal,  $\beta = .19$ ,  $p = .08$ . Thus, we found no evidence for these alternative explanations of the relation between SCA and anxiety in the face of threatening self-relevant feedback.

### Study 3

The findings from Studies 1 and 2 generally supported our hypothesis that when prompted to reflect on their self-construals, people with “naturally” higher SCA experience less anxiety in the face of threatening self-relevant uncertainty. The primary goals of Study 3 were to extend this finding to a health context and, more importantly, to manipulate SCA rather than simply prompt people to reflect on their naturally occurring levels of SCA. Thus, this study examined the potential for SCA to serve as a self-protective strategy that can be activated in moments of uncertainty.

### Method

Participants ( $N = 66$ , 77% female,  $M_{\text{age}} = 19.2$ , race/ethnicity unavailable) learned about toxins present in plastics, flame retardants, and so on, and then provided a cheek swab that ostensibly would reveal their degree of toxin exposure. All participants believed that their sample would be analyzed immediately and that they would learn the results of their test at the end of the session. Participants then completed one of two versions of a questionnaire, which included the manipulation of SCA. Participants in the abstract self-construal condition listed “five traits and characteristics that describe the kind of person [they] were today” and explained why each trait or characteristic is important to them. Participants in the concrete self-construal condition listed “five specific things [they] did or accomplished today” and explained why each accomplishment is important to them (Updegraff et al., 2010). Participants then completed the same 10-item measure of anxiety used in Studies 1 and 2 ( $\alpha = .93$ ), a measure of event construal in which participants indicated whether they viewed the upcoming feedback as “finding out my exposure to toxin levels in parts per million” (concrete) or “learning about my health” (abstract), and a prediction of their toxin levels out of 100 parts per million ( $M = 63.33$ ,  $SD = 13.0$ ).

### Results and Discussion

Did priming an abstract self-construal buffer participants from feedback-related anxiety? We conducted an independent-samples  $t$  test and found that, as hypothesized, participants in the abstract self-construal condition were less anxious in the face of feedback ( $M = 2.24$ ,  $SD = 1.3$ ) than participants in the concrete self-construal condition ( $M = 3.07$ ,  $SD = 1.8$ ),  $t(64) = 2.18$ ,  $p = .03$ ,  $d = .55$ .

We also examined whether the participants in the abstract self-construal condition provided more optimistic feedback predictions or more abstract event construals than participants in the concrete self-construal condition as a final test of the two potential alternative explanations for our findings. We did not code the valence of self-statements in Study 3 because the content of these statements was manipulated

rather than spontaneously generated by participants. Consistent with Studies 1 and 2, the predictions of participants in the abstract self-construal condition ( $M = 61.00$ ,  $SD = 14.4$ ) were not significantly different from predictions of participants in the concrete self-construal condition ( $M = 65.4$ ,  $SD = 11.4$ ),  $t(64) = 1.39$ ,  $p = .17$ ,  $d = .35$ . Also consistent with our previous findings, the pattern of participants' event construals in the abstract self-construal condition (84% construed the event abstractly) was not significantly different from the pattern of choices in the concrete self-construal condition (74% construed the event abstractly),  $\chi^2(1, N = 66) = .90$ ,  $p = .34$ ,  $\phi = .12$ .

### General Discussion

The anxiety-provoking nature of self-relevant uncertainty is both intuitive and empirically supported, yet little is known about how to reduce anxiety over uncertain outcomes. This goal is particularly important in light of the negative consequences of anxiety for performance on cognitive and behavioral tasks (Eysenck & Calvo, 1992) and information processing (Rutherford, MacLeod, & Campbell, 2004). Our studies exploited a construct previously established as a self-protective device in the aftermath of negative life events, SCA, and thus uncovered a potentially powerful strategy for mitigating anxiety in the face of self-relevant uncertainty. The findings from three studies demonstrate the self-protective role of SCA in mitigating anxiety, as both a naturally occurring characteristic and an experimentally manipulated construct. Studies 1 and 2 found support for our hypothesis that people with more abstract self-construals experience less anxiety over uncertainty than people with more concrete self-construals when uncertainty is particularly threatening to self-views. Although the interaction between SCA and threat did not reach statistical significance in Study 2, the pattern of results in that study supported our hypotheses and replicated the somewhat stronger findings from Study 1.

Most interestingly, these studies revealed that SCA was only related to anxiety when uncertainty posed a notable threat to people's self-worth. That is, SCA did not uniformly decrease anxiety or increase well-being; rather, it served the particular purpose of buffering anxiety when that anxiety naturally arose. Specifically, these studies confirmed two dimensions of threat salience that influenced the relation between SCA and anxiety: relevance and proximity of feedback. When people do not expect to receive feedback in the near future, or do not expect to receive feedback that would pose a significant threat to their self-worth, they seem not to engage the self-protective function of SCA. This finding suggests that in uncertain events that are not anxiety provoking, such as weather forecasts, dinner plans, and so on, both people with concrete self-construals and people with abstract self-construals will react similarly to uncertainty. However, when uncertain outcomes are highly threatening, such as the

results of a medical test or a job interview, SCA is likely to serve an important anxiety-buffering function.

In addition to examining how people naturally draw on SCA when uncertainty is threatening, Study 3 investigated whether SCA can temporarily be increased to buffer against anxiety. In fact, a subtle prime to increase SCA was successful at alleviating the anxiety of uncertainty about a health outcome. Interestingly, participants in Study 3 generally experienced low levels of anxiety across conditions ( $M = 2.84$  on a scale of 1 to 10). Based on significant role of threat salience found in Studies 1 and 2, the effect of SCA would likely be stronger in the context of an actual health evaluation, when the threat of a negative outcome undoubtedly feels more real and is thus more anxiety provoking. With replication, this finding can serve as the basis for valuable interventions to reduce anxiety in uncertain situations. For example, when uncertain outcomes have the potential to be particularly devastating or when uncertainty is painfully prolonged, professional and personal caregivers can help people manage their anxiety by targeting SCA.

Finally, we sought to distinguish SCA as a unique self-protective strategy and not simply an echo of optimism, general or event-related construal, or self-affirmation. Studies 1 and 2 examined two alternative explanations for the effect of SCA on anxiety. Study 1 explored the relation between SCA and a generally positive mind-set and found that SCA was not significantly related to optimism or positive self-views. In addition to replicating the null relation between positive mind-set and SCA found in Study 1, Study 2 tested the possibility that chronic abstractness in event-related construals could account for the relation between SCA and anxiety over threatening, self-relevant uncertainty. Our finding that SCA was unrelated to general or event-related construals further supports the argument for SCA as a distinct anxiety management strategy. Study 3 replicated the findings from Studies 1 and 2 with a manipulation rather than a measure of SCA, further negating the possibility that SCA is simply a proxy for a positive mind-set or chronically abstract construals.

Likewise, we pitted the predictions for SCA against the predictions previous research would suggest regarding self-affirmation and found no evidence that an abstract self-construal serves as self-affirmation. Specifically, research on self-affirmation would suggest that if an abstract self-construal functions as a type of self-affirmation, people in our high-threat conditions should have experienced *greater* anxiety with a more abstract self-construal. In fact, we found the opposite.

### Implications

Our studies demonstrate that SCA both plays a noteworthy role in reducing anxiety over self-relevant uncertainty and serves as a target for interventions designed to relieve anxiety in this context. Previous research focused on the role of SCA in recovering from or weathering blows to one's self-esteem

(Updegraff et al., 2010; Updegraff & Suh, 2007). Our finding that SCA also buffers against anxiety when the potential for a personal blow remains uncertain reveals a previously unidentified feature of SCA.

What is it about a subtle shift in self-views that reduces the anxiety of uncertainty? The literature on self-enhancement confirms that abstractness allows people to adopt a more flexible, and often more flattering, standard of self-evaluation (Dunning, Leuninger, & Sherman, 1995). In the context of SCA, this finding suggests that people with an abstract self-construal face uncertain outcomes with the reassurance that they can easily adjust or redefine self-views to accommodate an undesirable outcome. Theorists have noted the benefits of broadly defined contingencies of self-worth that are easily satisfied by a number of possible outcomes (e.g., "I am a good student") versus specific, concrete contingencies that require exact outcomes for the contingencies to be met (e.g., "I am on the Dean's list"; Pyszczynski, Greenberg, & Goldenberg, 2003). This point is particularly relevant to SCA, suggesting that abstractly construed definitions support or buffer important self-views from threatening information or outcomes. When an uncertain outcome poses a threat to self-views, an abstract self-construal can sustain relatively stable self-views by promoting more flexible criteria of self-worth, thereby neutralizing the threat of uncertainty.

### Conclusions

Our findings extend the previous literature to suggest that SCA serves a valuable self-protective function with a variety of positive outcomes including subjective well-being and self-esteem stability in response to negative life events (Updegraff et al., 2010; Updegraff & Suh, 2007), and now reduced anxiety during difficult waiting periods. The present studies also add to the literature on coping with uncertainty by suggesting that broad, abstract self-views might render other coping mechanisms (e.g., lowering expectations to brace for bad news; Carroll et al., 2006) unnecessary and by offering an effective strategy for reducing anxiety when it occurs. Furthermore, our findings indicate that promoting SCA as a buffer against anxiety is relatively simple, even for people who might naturally tend toward concrete self-construals. The relative ease of this type of intervention makes it an ideal target for the already hectic contexts that often beget self-relevant uncertainty, such as education, business, and health care. In conclusion, although uncertainty is at times inevitable, our studies suggest that anxiety over uncertainty need not be.

### Acknowledgments

We thank John Updegraff, Sonja Lyubomirsky, and Howard Friedman for helpful feedback on an earlier version of this manuscript.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

## References

- Behar, E. (2001). *Controllability and predictability in generalized anxiety disorder* (Unpublished thesis). Pennsylvania State University, University Park, PA.
- Berlyne, D. (1960). *Conflict, arousal, and curiosity*. New York, NY: McGraw-Hill.
- Carroll, P., Sweeny, K., & Shepperd, J. A. (2006). Forsaking optimism. *Review of General Psychology, 10*, 56-73.
- Dunning, D., Leuenberger, A., & Sherman, D. A. (1995). A new look at motivated inference: Are self-serving theories of success a product of motivational forces? *Journal of Personality and Social Psychology, 69*, 58-68.
- Epstein, S., Rosenthal, S., & Szpiller, J. (1978). The influence of attention upon anticipatory arousal, habituation, and reactivity to a noxious stimulus. *Journal of Research in Personality, 12*, 30-40.
- Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition and Emotion, 6*, 409-434.
- Fiske, D., & Maddi, S. (1961). A conceptual framework. In D. Fiske & S. Maddi (Eds.), *Functions of varied experience* (pp. 11-56). Homewood, IL: Dorsey.
- Flory, N., Faintuch, S., & Lang, E. V. (2008, May). *Awaiting diagnosis can be more stressful than cancer treatment*. Paper presented at the annual convention of the American Psychological Association, Boston, MA.
- Harris, P. R., & Napper, L. (2005). Self-affirmation and the biased processing of threatening health-risk information. *Personality and Social Psychology Bulletin, 31*, 1250-1263.
- Janzen, J. A., & Hadjistavropoulos, H. D. (2008). Examination of negative affective responses to waiting for surgery. *Canadian Journal of Nursing Research, 40*, 72-91.
- Monat, A., Averill, J. R., & Lazarus, R. S. (1972). Anticipatory stress and coping reactions under various conditions of uncertainty. *Journal of Personality and Social Psychology, 24*, 237-253.
- Morse, J. M., & Penrod, J. (1999). Linking concepts of enduring, uncertainty, suffering, and hope. *Image—The Journal of Nursing Scholarship, 31*, 145-150.
- Penrod, J. (2001). Refinement of the concept of uncertainty. *Journal of Advanced Nursing, 34*, 238-245.
- Penrod, J. (2002). Advancing the concept of uncertainty: Discerning and untangling related concepts. *International Journal of Qualitative Methods, 1*, 32-43.
- Penrod, J. (2007). Living with uncertainty: Concept advancement. *Journal of Advanced Nursing, 57*, 658-667.
- Pyszczynski, T., Greenberg, J., & Goldberg, J. (2003). Freedom vs. fear: On the defense, growth and expansion of the self. In M. Leary & J. P. Tugney (Eds.), *Handbook of self and identity* (pp. 314-343). New York, NY: Guilford.
- Reiman, E. M., Fusselman, M. J., Fox, P. T., & Raichle, M. E. (1989). Neuroanatomical correlates of anticipatory anxiety. *Science, 243*(4894), 1071-1074.
- Rutherford, E. M., MacLeod, C., & Campbell, L. W. (2004). Negative selectivity effects and emotional selectivity effects in anxiety: Differential attentional correlates of state and trait variables. *Cognition and Emotion, 18*, 711-720.
- Shepperd, J. A., Grace, J., Cole, L. J., & Klein, C. (2005). Anxiety and outcome predictions. *Personality and Social Psychology Bulletin, 31*, 267-275.
- Shepperd, J. A., Ouellette, J. A., & Fernandez, J. K. (1996). Abandoning unrealistic optimism: Performance estimates and the temporal proximity of self-relevant feedback. *Journal of Personality and Social Psychology, 70*, 844-855.
- Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 183-242). San Diego, CA: Academic Press.
- Sweeny, K., & Cavanaugh, A. G. (2010). Waiting is the hardest part: A model of uncertainty navigation in the context of health news. *Health Psychology Review, 1*-18.
- Taylor, K., & Shepperd, J. A. (1998). Bracing for the worst: Severity, testing, and feedback timing as moderators of the optimistic bias. *Personality and Social Psychology Bulletin, 24*, 915-926.
- Updegraff, J. A., Emanuel, A. S., Suh, E. M., & Gallagher, K. M. (2010). Sheltering the self from the storm: Self-construal abstractness and the stability of self-esteem. *Personality and Social Psychology Bulletin, 36*, 97-108.
- Updegraff, J., & Suh, E. (2007). Happiness is a warm abstract thought: Self-construal abstractness and subjective well-being. *Journal of Positive Psychology, 2*, 18-28.
- Vallacher, R. R., & Wegner, D. M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological Review, 94*, 3-15.
- Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology, 57*, 660-671.
- Vess, M., Arndt, J., & Schlegel, R. J. (2011). Abstract construal levels attenuate state self-esteem reactivity. *Journal of Experimental Social Psychology, 47*, 861-864.
- Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. *Current Directions in Psychological Science, 14*, 131-134.